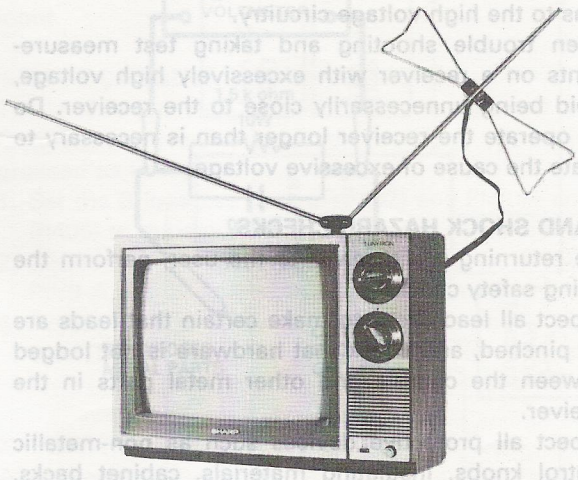
SHARP SERVICE MANUAL

SY5M413LM16//



COLOR TELEVISION
SIGMA 9100 CHASSIS

Chassis No. K1

MODEL 13LM16

In the interests of user-safety (Required by safety regulations in some countries) the set should be restored to its original condition and only parts identical to those specified should be used.

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SHARP ELECTRONICS CORPORATION

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IMPORTANT SERVICE SAFETY PRECAUTION

■ Service work should be performed only by qualified service technicians who are thoroughly familiar with all safety checks and servicing guidelines which follow:

WARNING

1. For continued safety, no modification of any circuit should be attempted.
2. Disconnect AC power before servicing.
3. Semiconductor heat sinks are potential shock hazards when the receiver is operating.
4. The chassis in this receiver is hot. (connected to one side of the AC line).
   To prevent electrical shock use an isolation transformer between the line cord and power receptacle, when servicing this chassis.

SERVICING OF HIGH VOLTAGE SYSTEM AND PICTURE TUBE

When servicing the high voltage system, remove the static charge by connecting a 10 k ohm resistor in series with an insulated wire (such as a test probe) between the picture tube ground and the anode lead. (AC cord should be disconnected from AC outlet.)

1. Note that the picture tube in this receiver employs integral implosion protection.
2. Replace with tube of the same type number for continued safety.
3. Do not lift picture tube by the neck.
4. Handle the picture tube only when wearing shatterproof goggles and after discharging the high voltage anode completely.

X-RADIATION AND HIGH VOLTAGE LIMITS

1. All service personnel should be aware of the procedures and instructions covering X-radiation. The only potential source of X-ray in current solid state TV receivers is the picture tube. However, the picture tube does not emit measurable X-Ray radiation if the high voltage is as specified in the "High Voltage Check" instructions. It is only when high voltage is excessive that X-radiation is capable of penetrating the picture tube shell which includes lead in glass material. The important precaution is to keep high voltage below the maximum level specified.
2. It is essential that servicemen have available at all times an accurate high voltage meter. The calibration of this meter should be checked periodically.
3. High voltage should always be kept at the rated value — no higher. Operation at higher voltages may cause a failure of the picture tube or high voltage circuitry and, under certain conditions, may produce radiation in excess of desirable levels.
4. When the high voltage regulator is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should be tested while monitoring high voltage with a meter to be certain that it does not exceed the specified value and is regulated correctly.
5. Do not use a picture tube other than that specified, and do not make unrecommended circuit modifications to the high voltage circuitry.
6. When trouble shooting and taking test measurements on a receiver with excessively high voltage, avoid being unnecessarily close to the receiver. Do not operate the receiver longer than is necessary to locate the cause of excessive voltage.

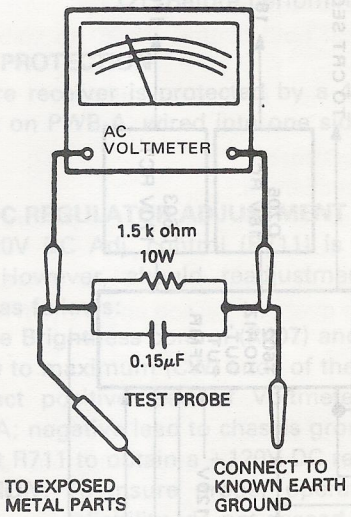
FIRE AND SHOCK HAZARD CHECKS

Before returning the receiver to the user, perform the following safety checks:

1. Inspect all lead dress to make certain that leads are not pinched, and check that hardware is not lodged between the chassis and other metal parts in the receiver.
2. Inspect all protective devices such as non-metallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacity networks, mechanical insulators, etc.
3. To be sure that no shock hazard exists, check for current leakage in the following manner:

- Plug the AC cord directly into a 120-volt AC outlet, (Do not use an isolation transformer for this test).
- Using two clip leads, connect a 1.5 k ohm, 10 watt resistor paralleled by a 0.15μF capacitor in series with all exposed metal cabinet parts and a known earth ground, such as an electrical conduit or electrical ground connected to an earth ground.
- Use a AC voltmeter having with 5000 ohm per volt, or higher, sensitivity to measure the AC voltage drop across the resistor.
- Make contact with the test probe on all exposed metal parts having a return path to the chassis (antenna, metal cabinet, screw heads, knobs and control shafts, escutcheon, etc.) and measure the AC voltage drop across the resistor.
  All checks must be repeated with the AC cord plug connection reversed (if necessary, a non-polarized adapter plug may be used only for the purpose of completing these checks).
  Any current measured must not exceed 0.5 milliamps.
  Any measurements not within the limits outlined above are indicative of potential shock hazard and corrective action must be taken before returning the set to the customer.

IMPORTANT SERVICE SAFETY PRECAUTION (Continued)



SAFETY NOTICE

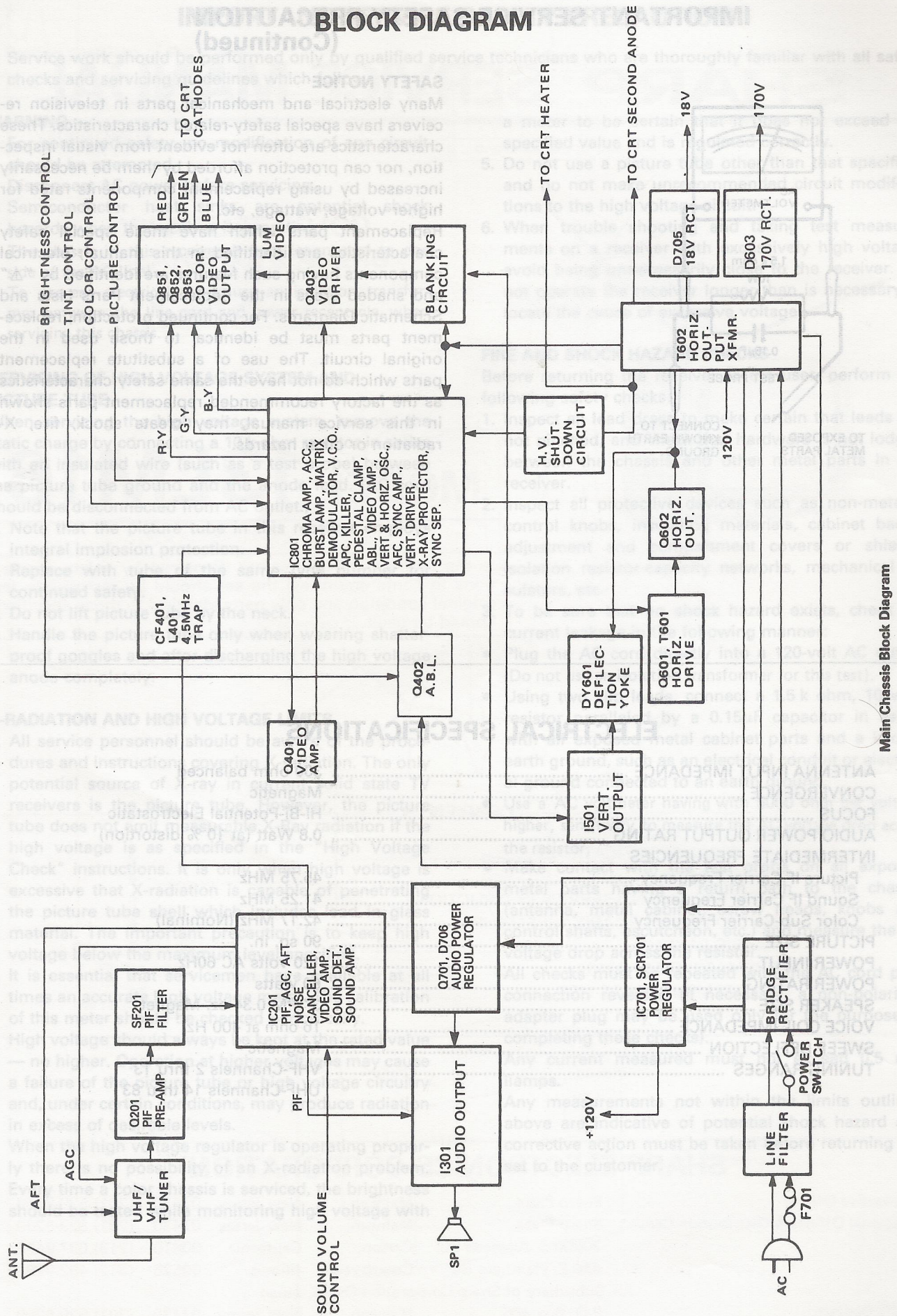
Many electrical and mechanical parts in television receivers have special safety-related characteristics. These characteristics are often not evident from visual inspection, nor can protection afforded by them be necessarily increased by using replacement components rated for higher voltage, wattage, etc.

Replacement parts which have these special safety characteristics are identified in this manual; electrical components having such features are identified by "⚠" and shaded areas in the Replacement Parts Lists and Schematic Diagrams. For continued protection, replacement parts must be identical to those used in the original circuit. The use of a substitute replacement parts which do not have the same safety characteristics as the factory recommended replacement parts shown in this service manual, may create shock, fire, X-radiation or other hazards.

ELECTRICAL SPECIFICATIONS

ANTENNA INPUT IMPEDANCE	300 ohm balanced
CONVERGENCE	Magnetic
FOCUS	Hi-Bi-Potential Electrostatic
AUDIO POWER OUTPUT RATING	0.8 Watt (at 10 % distortion)
INTERMEDIATE FREQUENCIES	
Picture IF Carrier Frequency	45.75 MHz
Sound IF Carrier Frequency	41.25 MHz
Color Sub-Carrier Frequency	42.17 MHz (Nominal)
PICTURE SIZE	90 sq. in.
POWER INPUT	120 volts AC 60Hz
POWER RATING	60 watts
SPEAKER SIZE	3" PM 0.34 oz. Magnet
VOICE COIL IMPEDANCE	16 ohm at 400 Hz
SWEEP DEFLECTION	Magnetic
TUNING RANGES	VHF-Channels 2 thru 13 UHF-Channels 14 thru 83

BLOCK DIAGRAM



Main Chassis Block Diagram

INSTALLATION AND SERVICE INSTRUCTIONS

Note: (1) When performing any adjustments to resistor controls and transformers use non-metallic screwdriver or TV alignment tools.
(2) Before perfoming adjustment, TV set must be on at least 15 minutes.

CIRCUIT PROTECTION

The entire receiver is protected by a 4.0A fuse (F701), mounted on PWB-A, wired into one side of the AC line input.

+120V DC REGULATOR ADJUSTMENT

The +120V DC Adj. control (R711) is adjusted at the factory. However, should readjustment be required, proceed as follows:

1. Set the Brightness control (R407) and Picture control (R406) to maximum (CW) ends of their rotations.
2. Connect positive lead of Voltmeter to TP701 on PWB-A; negative lead to chassis ground.
3. Adjust R711 to obtain a +120V DC reading.
   CAUTION: To insure proper operation and circuit reliability, do not exceed +120V DC.

X-RADIATION PROTECTOR CIRCUIT TEST

After service has been performed on the horizontal deflection system, high voltage system, or +B system, the X-Radiation protection circuit must be tested for proper operation as follows:

1. Apply 120V AC using a variac transformer for accurate input voltage.
2. Allow for warm up and adjust all customer controls for normal picture and sound.
3. Check the voltage of test points TP601 and TP602. (The voltage of these points should be about 18.5V DC and 18.0V DC respectively.)
4. Connect the cathode of diode D502 with TP602 through a short clip lead. When these points are connected, the operation of horizontal oscillator stops.
5. To start operation, remove the above short clip lead and touch the TP603 to chassis ground (TP604) with a short clip lead. (Remove short clip lead as soon as the set operates again with a normal picture.) Connect TP601 to cathode of diode D502, and see that the operation of horizontal oscillator then stops.
6. If the operation of the horizontal osc. does not stop in steps 4 and 5, the circuit must be repaired before the set is returned to the customer.

HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified checks should be as follows:

1. Connect an accurate high voltage meter to CRT anode.
2. Operate receiver for at least 15 minutes at 120V AC line voltage, with strong air signal or properly tuned test signal.
3. Set SW851 on PWB-B to "off" (center) position. Note that a loss of luminance will occur.
4. Rotate Screen control (on T602) to maximum (CCW) end of its rotation.
5. The reading should be approximately 23.5kV (at zero beam)

If a correct reading cannot be obtained, check circuitry for malfunctioning components. Upon completion of voltage check, readjust screen control for proper operation and set SW851 to "on" position.

INSTALLATION AND SERVICE INSTRUCTIONS (Continued)

Field Adjustment

RF. AGC. Adjustment

(1) Select a local channel.
(2) Place AFT switch in "off" position.
(3) Fine tune to best picture.
(4) Turn RF AGC control (R215) fully clockwise until snow and/or noise appear in picture, then slowly turn control counter clockwise until snow and/or noise disappear.
(5) Check all other channels.

SOUND

(1) Select a local channel.
(2) Place AFT switch in "off" position.
(3) Fine tune to best picture.
(4) Adjust volume control to mid-position.
(5) Adjust sound det. coil (L301) to obtain good clear sound.

AFT Adjustment

(1) Place AFT switch or button in "off" position.
(2) Select a local channel and adjust fine tuning control for best picture and sound. Repeat this procedure for all local channels.
(3) Place AFT switch in "on" position to lock in all channels.
(4) Check all channels with AFT switch "on".

Horizontal Hold Adjustment

(1) Select a local channel.
(2) Adjust horizontal hold control (R609) to stabilize picture.
(3) Check all channels for stable picture.

Vertical Hold Adjustment

(1) Select a local channel.
(2) Adjust vertical hold control (R505) to stabilize picture.
(3) Check all channels for a stable picture.

Vertical Size Adjustment

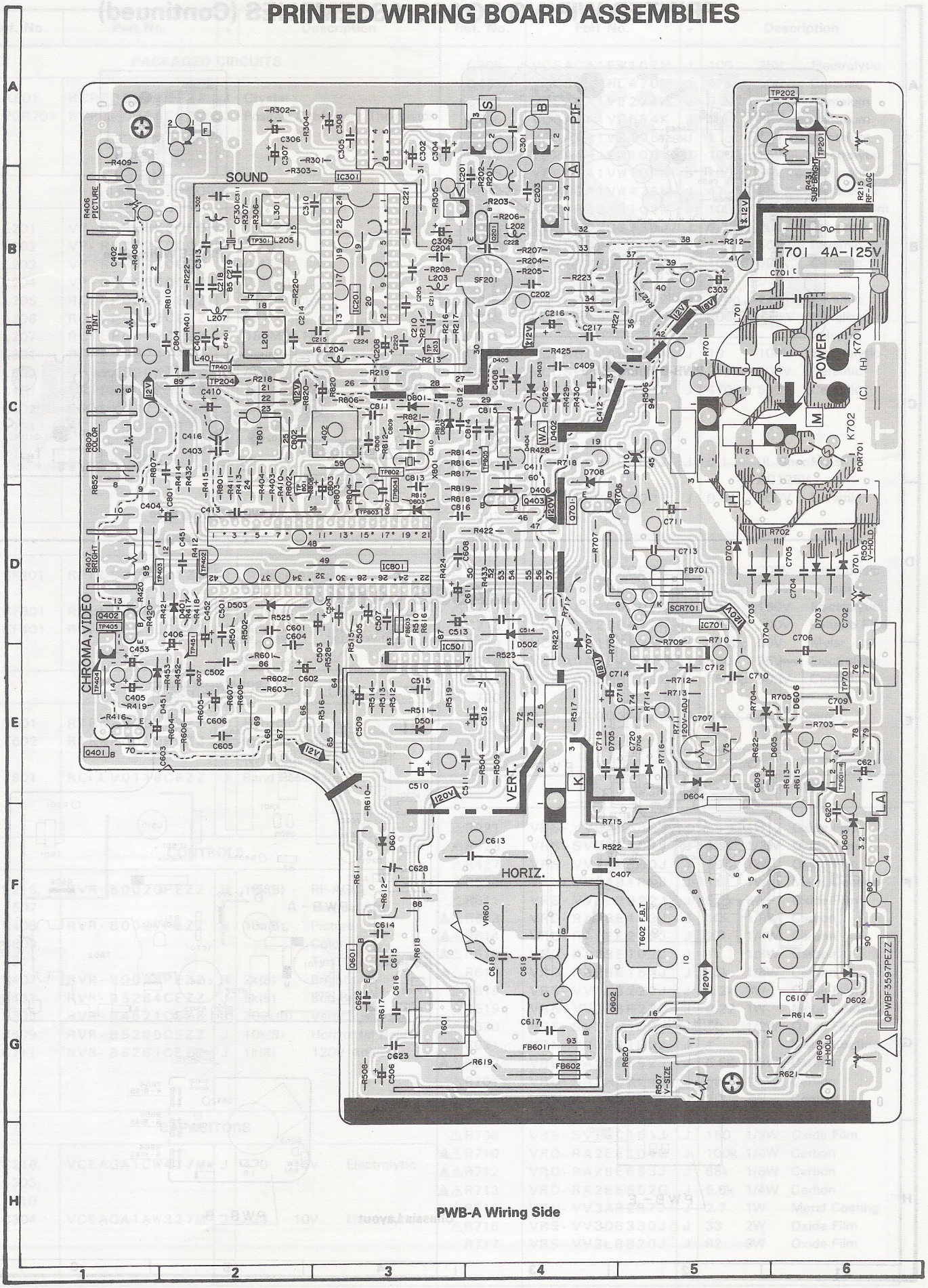
(1) Select a local channel.
(2) Check vertical hold, brightness and picture controls for a normal picture.
(3) Adjust vertical size control (R507) for approximately one-half inch over scan at top and bottom of picture screen.

Focus Adjustment

(1) Select a local channel.
(2) Set brightness and picture control at a normal viewing level.
(3) Adjust focus control (part of T602) for sharp scanning lines and/or sharp picture.

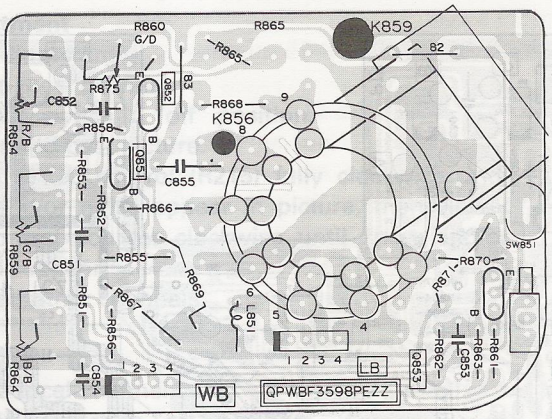
NOTE: All field adjustments mentioned can be performed without test equipment.

PRINTED WIRING BOARD ASSEMBLIES

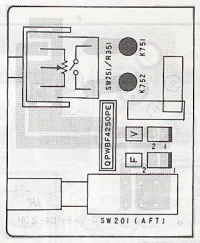


PWB-A Wiring Side

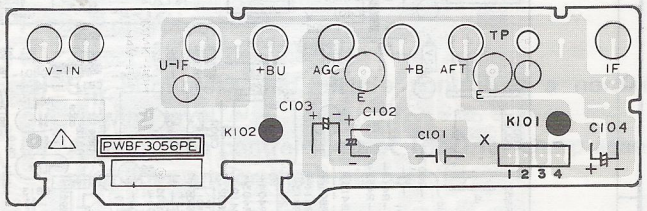
PRINTED WIRING BOARD ASSEMBLIES (Continued)



PWB-B Wiring Side

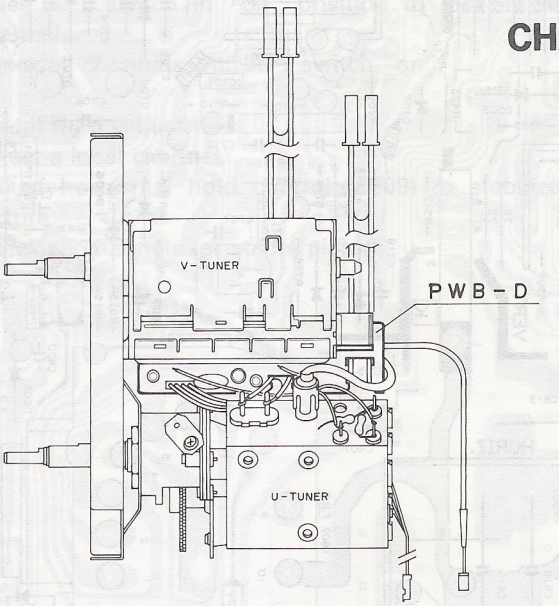


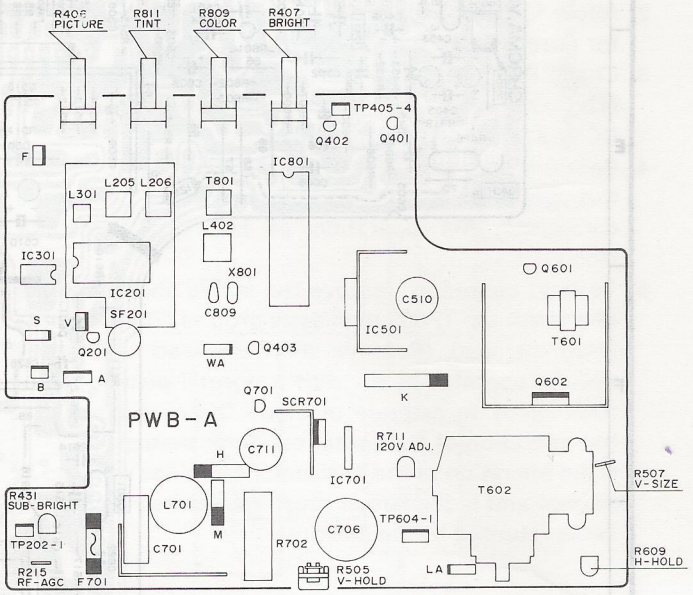
PWB-E Wiring Side

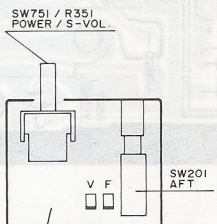


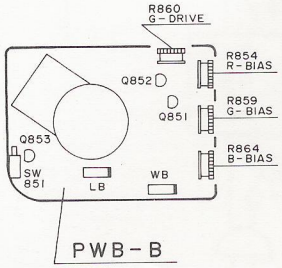
PWB-D Wiring Side

CHASSIS LAYOUT







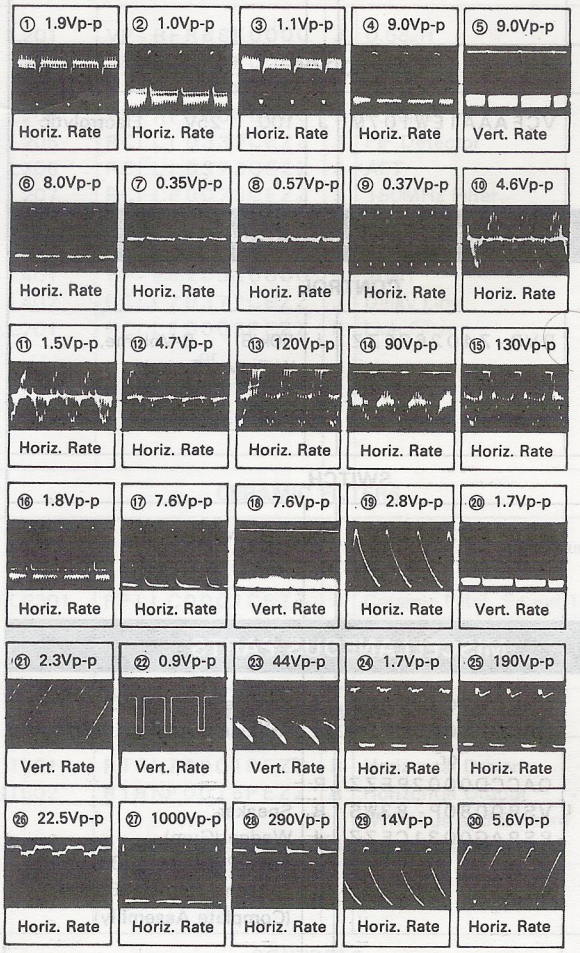


Chassis Layout

WAVEFORMS

WAVEFORM MEASUREMENT CONDITIONS:

1. *Photographs taken on a standard gated rainbow color bar signal, the tint setting adjusted for proper color. The wave shapes at the red, green and blue cathodes of the picture tube depend on the tint, color level and picture control.*
2. ⊂ *indicates wave form check points (See chart, waveforms are measured from point indicated to chassis ground.)*



NOTE:

1. *The unit of resistance "ohm" is omitted (K: 1000 ohms, M:I Meg ohm).*
2. *All resistors are 1/8 watt, unless otherwise noted.*
3. *All capacitors are μF, unless otherwise noted P: μμF.*
4. *(G) indicates ±2% tolerance may be used.*

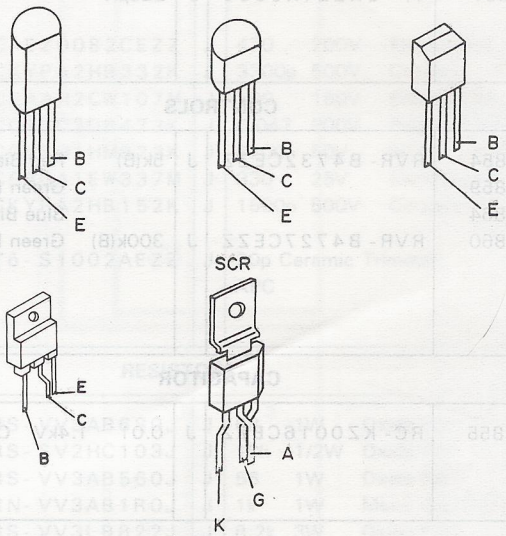
VOLTAGE MEASUREMENT CCNDITIONS:

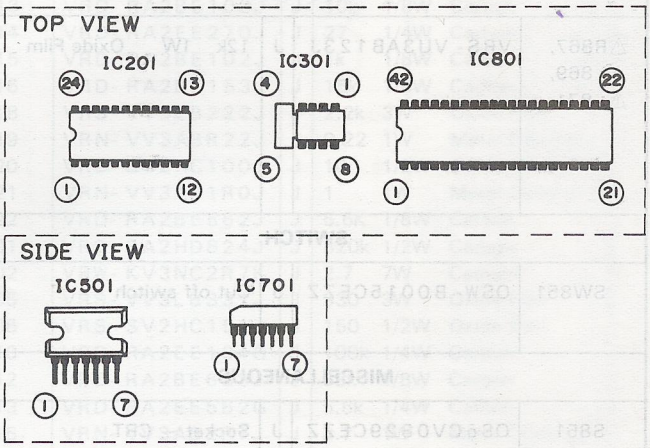
1. *All DC voltages are measured with VTVM connected between points indicated and chassis ground, line voltage set at 120V AC and all controls set for normal picture unless otherwise indicated.*
2. *All voltages measured with 1000μV B & W or Color signal.*

⚠ AND SHADED COMPONENTS = SAFETY RELATED PARTS, ▲ MARK = X-RAY RELATED PARTS.

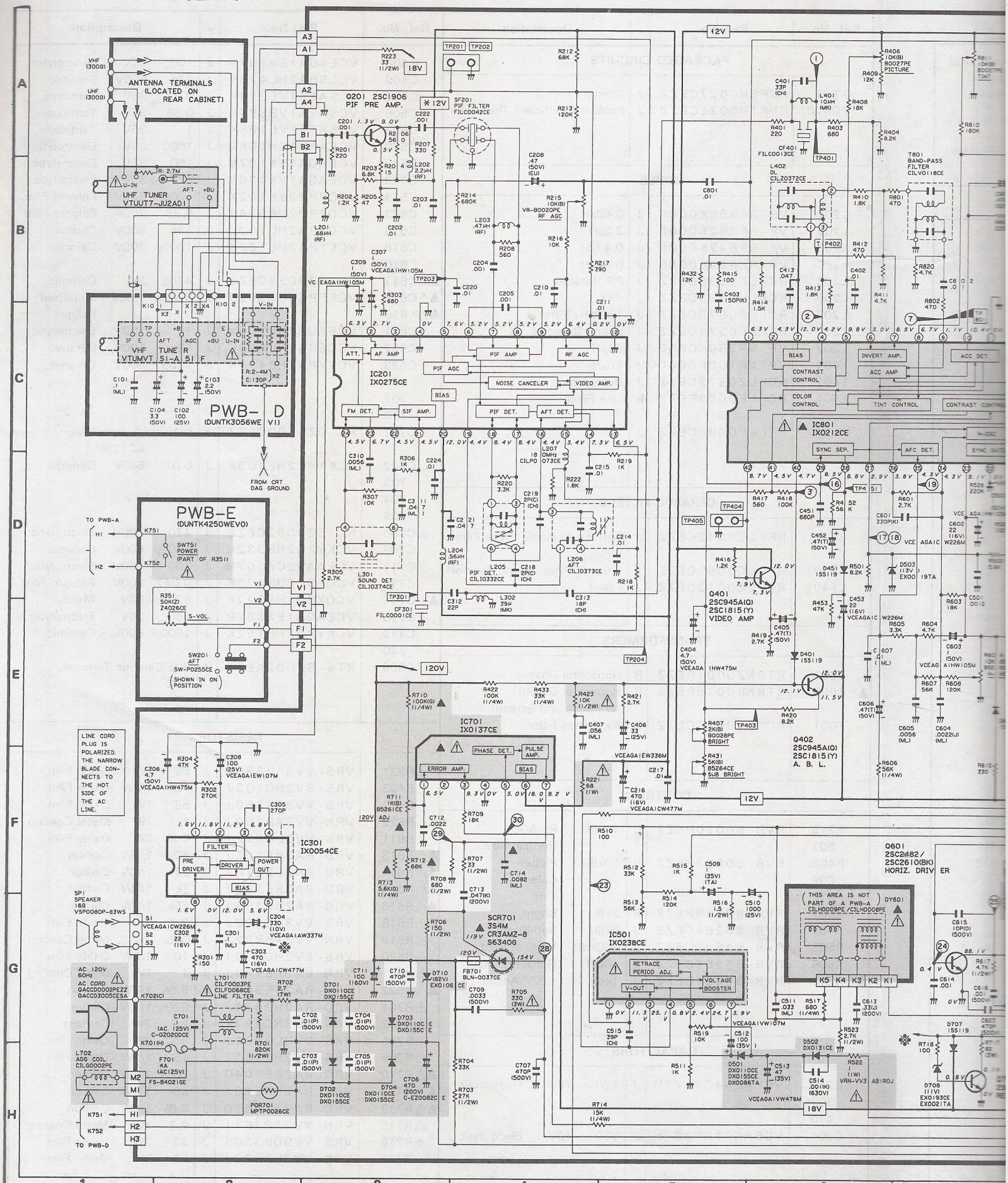
This circuit diagram is a standard one, printed circuits may be subject to change for product improvement without prior notice.

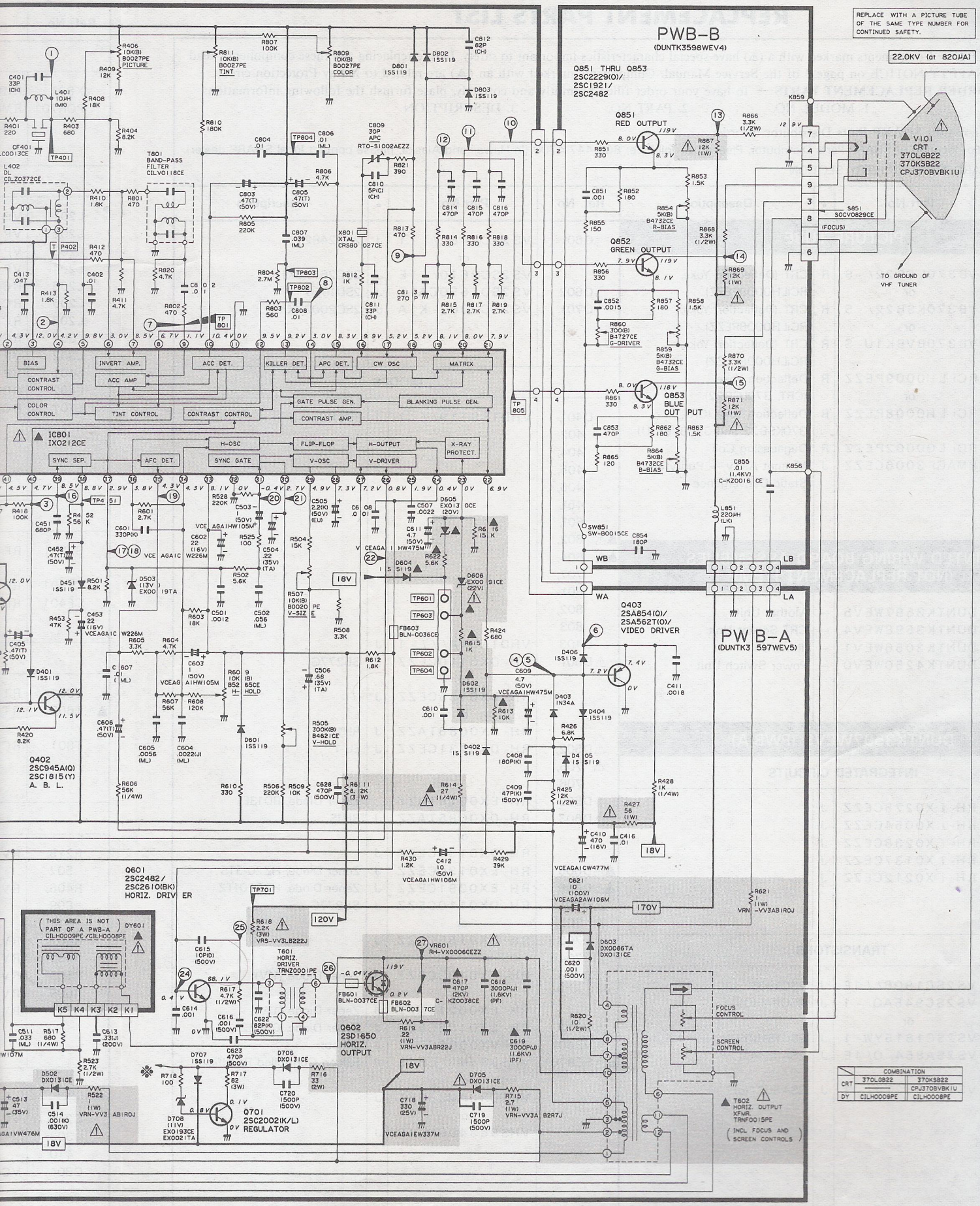
SOLID STATE DEVICE BASE DIAGRAM





MODEL 13LM16




PWB-B
(DUNTK3598WEV4)
REPLACE WITH A PICTURE TUBE OF THE SAME TYPE NUMBER FOR CONTINUED SAFETY.
22.0KV (at 820μA)
Q851 THRU Q853
2SC2229(O)/
2SC1921/
2SC2482
Q851
RED OUTPUT
Q852
GREEN OUTPUT
Q853
BLUE OUTPUT
V101
CRT -
370LGB22
370KSB22
CPJ370BVBK1U
S851
SOCV0829CE
(FOCUS)
TO GROUND OF VHF TUNER
IC801
IX0212CE
BIAS
CONTRAST CONTROL
COLOR CONTROL
INVERT AMP.
ACC AMP
TINT CONTROL
ACC DET.
CONTRAST CONTROL
KILLER DET.
APC DET.
CONTRAST AMP.
CW OSC
MATRIX
GATE PULSE GEN.
BLANKING PULSE GEN.
SYNC SEP.
AFC DET.
H-OSC
SYNC GATE
FLIP-FLOP
V-OSC
H-OUTPUT
V-DRIVER
X-RAY PROTECT.
Q403
2SA854(O)/
2SA562T(O)/
VIDEO DRIVER
PWB-A
(DUNTK3597WEV5)
Q402
2SC945A(Q)
2SC1815(Y)
A. B. L.
Q601
2SC2482/
2SC2610(BK)
HORIZ. DRIVER
Q602
2SD1650
HORIZ. OUTPUT
Q701
2SC2002(K/L)
REGULATOR
T602
HORIZ. OUTPUT XFMR.
TRNF0015PE
(INCL FOCUS AND SCREEN CONTROLS)
FOCUS CONTROL
SCREEN CONTROL
THIS AREA IS NOT PART OF A PWB-A
CILH0009PE/CILH0008PE
WA
WB
LA
LB
120V
170V
18V
COMBINATION
CRT
370LGB22
370KSB22
CPJ370BVBK1U
DY
CILH0009PE
CILH0008PE

REPLACEMENT PARTS LIST

SAFETY NOTE — Components marked with a (⚠) have special characteristics important to safety. Before replacing any these components, read cafully the SAFETY NOTICE on page 3 of the Service Manual. Components marked with an (▲) are related to X-Ray Protection circuit.
HOW TO ORDER REPLACEMENT PARTS — To have your order filled promptly and correctly, plase furnish the following information:
1. MODEL NO. 2. PART NO. 3. DESCRIPTION

Contact your nearest SHARP Parts Distributor to order.
For location of SHARP Parts Distributor, Please call Toll-Free; 800-447-4700 (In Hawaii and Alaska, please contact local SHARP dealer).

* MARK: SPARE PARTS-DELIVERY SECTION

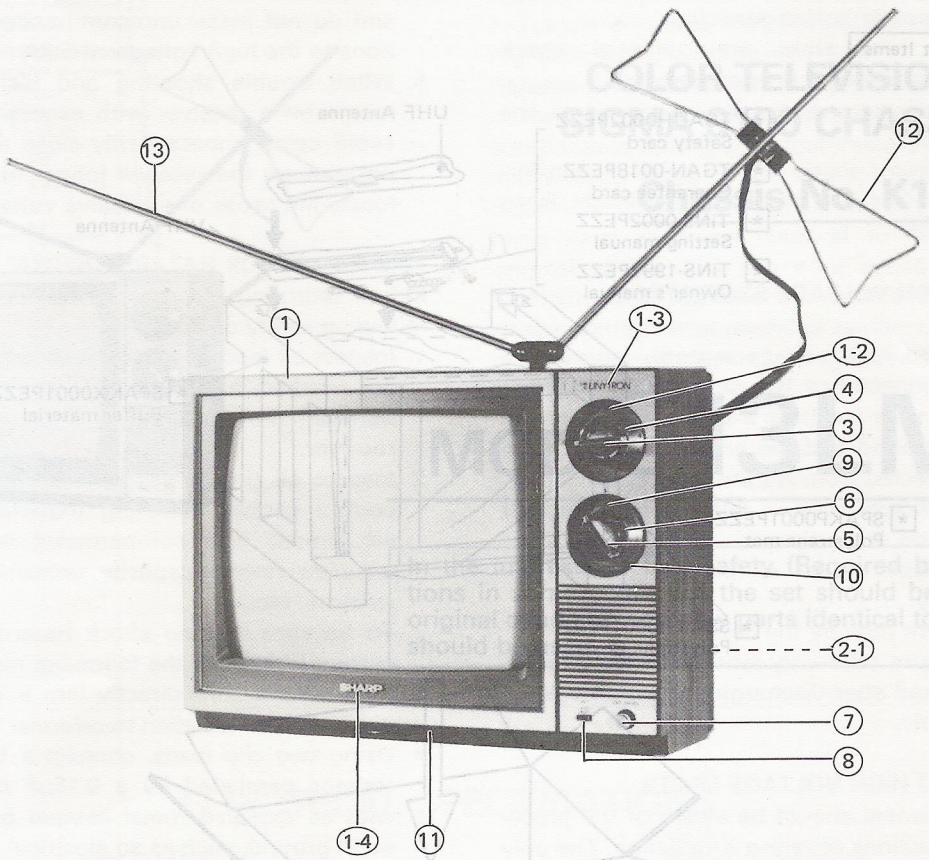
Ref. No.	Part No.	*	Description
PICTURE TUBE			
▲⚠V101	VB370LGB22/-S	R	CRT (Deflection Yoke,
	or		RCiLH0009PEZZ)
	VB370KSB22/-S	R	CRT (Deflection Yoke,
	or		RCiLH0008PEZZ)
	VB370BVBK1U-S	R	CRT (Deflection Yoke,
			RCiLH0008PEZZ)
▲⚠DY601	RCiLH0009PEZZ	R	Deflection Yoke
	or		(CRT, 370LGB22)
	RCiLH0008PEZZ	R	Deflection Yoke (CRT,
			370KSB22 and 370BVBK1U)
⚠L702	RCiLG0002PEZZ	R	Degaussing Coil
	PMAGF3006CEZZ	J	Magnet Ass'y — Purity and Static Convergence
PRINTED WIRING BOARD ASSEMBLIES (NOT REPLACEMENT ITEM)			
PWB-A	DUNTK3597WEV5	—	Mother Unit
PWB-B	DUNTK3598WEV4	—	CRT Socket Unit
PWB-D	DUNTK3056WEV1	—	Tuner Unit
PWB-E	DUNTK4250WEV0	—	Power Switch Unit
DUNTK3597WEV5 (PWB-A)			
INTEGRATED CIRCUITS			
IC201	RH-iX0275CEZZ	J	
IC301	RH-iX0054CEZZ	J	
⚠IC501	RH-iX0238CEZZ	J	
▲⚠IC701	RH-iX0137CEZZ	J	
▲⚠IC801	RH-iX0212CEZZ	J	
TRANSISTORS			
Q201	VS2SC1906//1E	J	2SC1906
Q401,	VS2SC945AQ/-1	J	2SC945(Q)
402	or		
	VS2SC1815YW-1	J	2SC1815(Y)
Q403	VS2SA854-Q/1E	J	2SA854(Q)
	or		
	VS2SA562Tö/-1	J	2SA562T(o)
Q601	VS2SC2482//-1	J	2SC2482
	or		
	VS2SC2610/-1E	J	2SC2610(BK)
⚠Q602	VS2SD1650CA1E	J	2SD1650
Q701	VS2SC2002-K1A	J	2SC2002 (K/L)
DIODES			
D401,	VHD1SS119//-1	J	1SS119
402,			
404,			
405,			
406,			
451,			
601,			
▲⚠ 602,			
▲⚠ 604,			
707,			
801,			
802,			
803			
D403	VHD1N34A///-1	J	
⚠D501	RH-DX0110CEZZ	J	S5277G
	or		
	RH-DX0155CEZZ	J	
	or		
	RH-DX0086TAZZ	J	RH1S
⚠D502,	RH-DX0131CEZZ	J	EU-1
⚠ 705,			
706			
D503	RH-EX0019TAZZ		Zener Diode, RD13E
⚠D603	RH-DX0086TAZZ	J	RH1S
	or		
	RH-DX0131CEZZ	J	
▲⚠D605	RH-EX0130CEZZ	J	Zener Diode, HZ20-3TS
▲⚠D606	RH-EX0091CEZZ	J	Zener Diode, HZ2201TZ
⚠D701,	RH-DX0110CEZZ	J	S5277G
⚠ 702,	or		
⚠ 703,	RH-DX0155CEZZ	J	
⚠ 704			
D708	RH-EX0193CEZZ	J	Zener Diode (11V)
	or		
	RH-EX0021TAZZ	J	Zener Diode (11V)
⚠D710	RH-EX0106CEZZ	J	Zener Diode, 05Z82
⚠VR601	RH-VX0006CEZZ	J	Varistor
▲⚠SCR701	VHS3S4M//LB1E	J	Silicon Controlled Rectifier
	or		
	VHSCR3AMZ8LB1	J	
	or		
	VHSS6340G//1E	J	

Ref. No.	Part No.	*	Description
PACKAGED CIRCUITS			
X801	RCRSB0027CEZZ	J	Crystal
POR701	RMPTP0026CEZZ	J	Positive Coefficient Thermistor
COILS			
L201	VP-RFR68K0000	J	0.68μH
L202	VP-RF2R2K0000	J	2.2μH
L203	VP-RFR47K0000	J	0.47μH
L204	VP-RFR56K0000	J	0.56μH
L205	RCiLi0332CEZZ	J	PIF Detector
L206	RCiLi0373CEZZ	J	AFT
L207	RCiLP0073CEZZ	J	180MHz Filter
L301	RCiLi0374CEZZ	J	Sound Detector
L302	VP-MK390K0000	J	39μH
L401	VP-MK100K0000	J	10μH
L402	RCiLZ0372CEZZ	J	Delay Line
⚠L701	RCiLF0003PEZZ	R	Line Filter
	or		
	RCiLF0068CEZZ	J	
CERAMIC FILTERS			
SF201	RFiLC0042CEZZ	J	Surface Acoustic Wave Filter, PIF
CF301	RFiLC0001CEZZ	J	Ceramic Filter, Sound Take-off
CF401	RFiLC0013CEZZ	J	Filter
TRANSFORMERS			
T601	RTRNZ0001PEZZ	R	Horizontal Driver
▲⚠T602	RTRNF0015PEZZ	R	Horizontal Output (W/Focus and Screen)
T801	RCiLV0118CEZZ	J	Band Pass Filter
CONTROLS			
R215, 507	RVR-B0020PEZZ	R	10k(B) RF-AGC Vertical Size
R406, 809, 811	RVR-B0027PEZZ	R	10k(B) Picture Color Tint
R407	RVR-B0028PEZZ	R	2k(B) Bright
R431	RVR-B5264CEZZ	J	5k(B) Sub-Bright
R505	RVR-B4621CEZZ	J	300k(B) Vertical Hold
R609	RVR-B5265CEZZ	J	10k(B) Horizontal Hold
▲⚠R711	RVR-B5261CEZZ	J	1k(B) 120V Adjust
CAPACITORS			
C216, 303, 410	VCEAGA1CW477M	J	470 16V Electrolytic
C304	VCEAGA1AW337M	J	330 10V Electrolytic

Ref. No.	Part No.	*	Description
C308	VCEAGA1EW107M	J	100 25V Electrolytic
C409	VCCSPA2HL470K	J	47p 500V Ceramic
C504	VCSATA1VE224K	J	0.22 35V Tantalum
C506	VCSATA1VE684K	J	0.68 35V Tantalum
C509	VCSATA1VE105K	J	1 35V Tantalum
C510	VCEAAH1EW108M	J	1000 25V Electrolytic
C512	VCEAGA1VW107M	J	100 35V Electrolytic
⚠C513	VCEAGA1VW476M	J	47 35V Electrolytic
C514	VCQPPB2JB102K	J	1000p 630V Polypro Film
C613	VCQPPD2DB334J	J	0.33 200V Polypro Film
C615	VCCSPA2HL100D	J	10p 500V Ceramic
C616, 620	VCKYPA2HB102K	J	1000p 500V Ceramic
▲⚠C617	RC-KZ0038CEZZ	J	470p 2kV Ceramic
▲⚠C618, ▲⚠ 619	VCFPPC3CA302J	J	3000p 1.6kV Metalized Polypro
⚠C621	VCEAGA2AW106M	J	10 100V Electrolytic
C622	VCCSPA2HL820K	J	82p 500V Ceramic
C623, 628, 707, 710	VCKYPA2HB471K	J	470p 500V Ceramic
⚠C701	RC-QZ020DCEZZ	J	0.1 UL Spec Mylar AC125V
C702, 703, 704, 705	VCKYPB2HE103P	J	0.01 500V Ceramic
⚠C706	RC-EZ0082CEZZ	J	470 200V Electrolytic
C709	VCKYPA2HB332K	J	3300p 500V Ceramic
⚠C711	VCEAAH2CW107M	J	100 160V Electrolytic
C713	VCQPSC2DB473K	J	0.047 200V Polupro Film
▲⚠C714	VCQYSH1HM822K	J	8200p 50V Mylar
⚠C718	VCEAGA1EW337M	J	330 25V Electrolytic
C719, 720	VCKYPA2HB152K	J	1500p 500V Ceramic
C809	RTō-S1002AEZZ	J	30p Ceramic Trimmer, APC
RESISTORS			
⚠R221	VRS-VV3AB680J	J	68 1W Oxide Film
⚠R423	VRS-SV2HC103J	J	10k 1/2W Oxide Film
⚠R427	VRS-VV3AB560J	J	56 1W Oxide Film
⚠R522	VRN-VV3AB1R0J	J	1k 1W Metal Coating
⚠R611	VRS-VV3LB822J	J	8.2k 3W Oxide Film
▲⚠R613	VRD-RA2BE103J	J	10k 1/8W Carbon
▲⚠R614	VRD-RA2EE270J	J	27 1/4W Carbon
▲⚠R615	VRD-RA2BE102J	J	1k 1/8W Carbon
▲⚠R616	VRD-RA2BE153J	J	15k 1/8W Carbon
⚠R618	VRS-VV3LB222J	J	2.2k 3W Oxide Film
⚠R619	VRN-VV3ABR22J	J	0.22 1W Metal Coating
⚠R620	VRS-SV2HC100J	J	10 1/2W Oxide Film
⚠R621	VRN-VV3AB1R0J	J	1 1W Metal Coating
▲⚠R622	VRD-RA2BE562J	J	5.6K 1/8W Carbon
⚠R701	VRD-RA2HD824J	J	820k 1/2W Carbon
⚠R702	VRW-KV3NC2R7K	J	2.7 7W Cement
⚠R705	VRS-VV3LB331J	J	330 3W Oxide Film
⚠R706	VRS-SV2HC151J	J	150 1/2W Oxide Film
▲⚠R710	VRD-RA2EE104G	J	100k 1/4W Carbon
▲⚠R712	VRD-RA2BE683J	J	68k 1/8W Carbon
▲⚠R713	VRD-RA2EE562G	J	5.6k 1/4W Carbon
⚠R715	VRN-VV3AB2R7J	J	2.7 1W Metal Coating
⚠R716	VRS-VV3DB330J	J	33 2W Oxide Film
R717	VRS-VV3LB820J	J	82 3W Oxide Film

Ref. No.	Part No.	*	Description
MISCELLANEOUS			
⚠F701	QFS-B4021GEZZ	J	Fuse — 4A, AC125V
	QFSHD1002CEZZ	J	Holder, F701 (2 Used)
FB601, 602, 701	RBLN-0037CEZZ	J	Ferrite Bead
FB603	RBLN-0036CEZZ	J	Ferrite Bead
DUNTK3598WEV4 (PWB-B)			
TRANSISTORS			
Q851, 852, 853	VS2SC2229ō/-1	J	2SC2229(o)
	or		
	VS2SC1921//1E	J	2SC1921
	or		
	VS2SC2482//-1	J	2SC2482
COIL			
L851	VP-LK221K0000	J	220μH
CONTROLS			
R854, 859, 864	RVR-B4732CEZZ	J	5k(B) Red Bias / Green Bias / Blue Bias
R860	RVR-B4727CEZZ	J	300k(B) Green Drive
CAPACITOR			
C855	RC-KZ0016CEZZ	J	0.01 1.4kV Ceramic
RESISTORS			
⚠R867, ⚠869, ⚠871	VRS-VU3AB123J	J	12k 1W Oxide Film
SWITCH			
SW851	QSW-B0015CEZZ	J	Cut off switch
MISCELLANEOUS			
S851	QSōCV0829CEZZ	J	Socket — CRT

Ref. No.	Part No.	*	Description
DUNTK3056WEV1 (PWB-D)			
TUNER			
NOTE: FOR TUNER REPAIRS, ORDER A COMPLETE REPLACEMENT TUNER.			
⚠	VTUMVTS1-A51F	R	Tuner VHF
⚠	VTUUT7-JU2AD1	R	Tuner UHF
CAPACITOR			
C102	VCEAAA1EW107M	J	100 25V Electrolytic
DUNTK4250WEV0 (PWB-E)			
CONTROL			
R351 ⚠SW751	RVR-Z4026CEZZ	J	50k(B) S-Volume, W/Power Switch
SWITCH			
SW201	QSW-P0255CEZZ	J	AFT Switch
MISCELLANEOUS PARTS			
	LHLDW9022TAZZ	J	Retainer, AC Line Cord
⚠	QACCD3005CESA	J	AC Line Cord, AC120V/60Hz
	or		
⚠	QACCD0002PEZZ	R	
SP1	VSP0080P-83WS	R	Speaker
	PSPAG0031CEZZ	J	Wedge (Gum), Yoke Positioning (3 Used)
	QTANN0768CEZZ	J	Antenna Terminal Board (Complete Assembly)
CABINET PARTS			
1	CCABA2005WEV0	R	
1-1	Not Available	—	Cabinet, Front
1-2	HiNDM0031PESD	R	VHF Indication Plate
1-3	HBDGD0012PESA	R	Badge "LINYTRON"
1-4	HBDGB0004PEKA	R	Badge "SHARP"
2	CCABB7725WEV0	R	Cabinet Complete, Rear
2-1	Not Available	—	Cabinet, Rear
3	CKNBC0002PES0	R	Knob, VHF Channel
4	JKNBK0005PEKA	R	Knob, VHF Preset Fine Tuning
5	CKNBC0003PES0	R	Knob, UHF Channel
6	JKNBK0006PEKA	R	Knob, UHF Preset Fine Tuning
7	JKNBK0004PEKA	R	Knob, off-on Volume
8	JBTN-1200CEKA	J	Button, AFT
9	HiNDM0054PESE	R	UHF Indication Plate
10	HDALP0008PEKA	R	Dial, UHF Channel
11	CKNBK0007PEK0	R	Knob, Control
12	QANTL0001PEZZ	R	Antenna Bowtie, UHF (Ass'y)
13	QANTR0001PEZZ	R	Antenn (Telescopic Dipole), VHF (Ass'y)


13
12
1
1-3
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9
6
5
10
2-1
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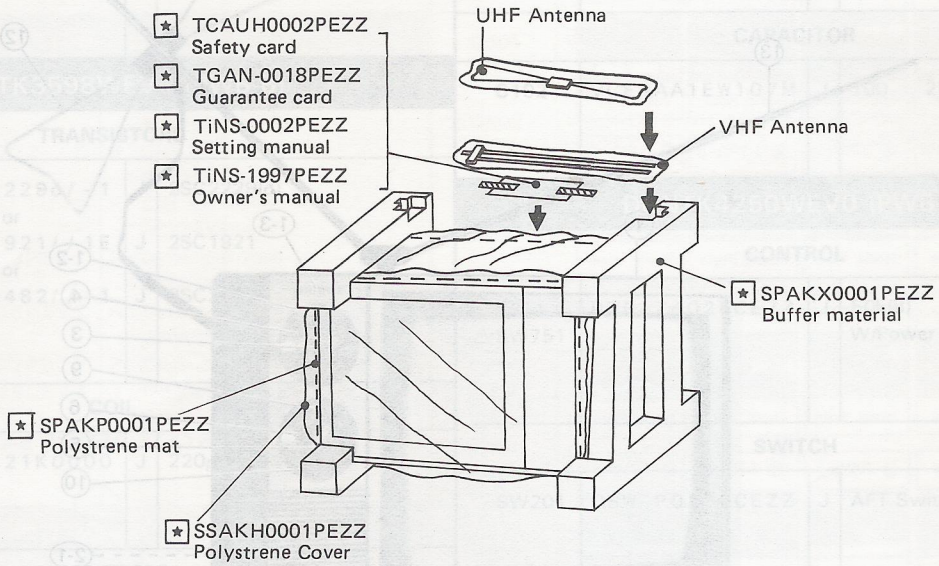
8
1-4
11
SHARP

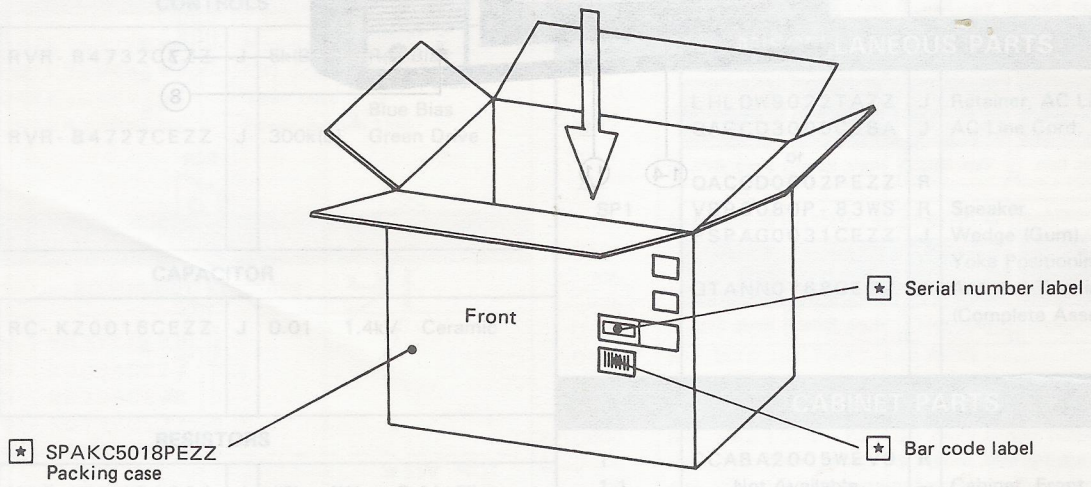
PACKING OF THE SET

- **Setting positions of the knobs**

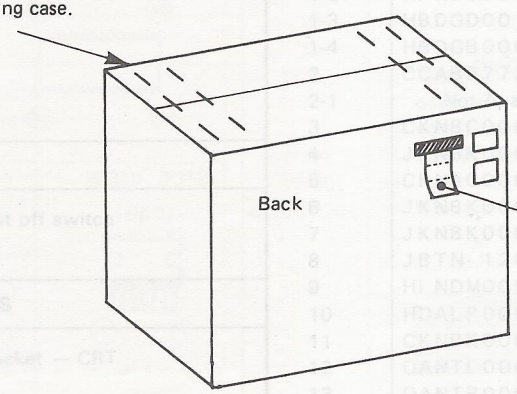
Power switch position	OFF	Picture control position	10/10
VHF channel position	CH2	Color control position	5/10
UHF channel position	CH 50	Tint control position	Flesh tone
AFT switch position	ON	Brightness control position	5/10

[★] : Not Replacement Items





Use 12 staples to fix the packing case.



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